Palmtops in Medical Education: A Work in Progress

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BACKGROUND

In 1992, the University of Arizona College of Medicine received a technology grant from the Hewlett-Packard corporation which included 200 HP-95LX palmtop computers. Their use was limited to first- and second-year students in the first phase; participation was completely voluntary.

Other individuals have also become palmtop owners using their own resources. These include both clinical and basic sciences faculty and residents. Interest has also been expressed by extramural faculty who were exposed to palmtops as part of the Dean's Teaching Scholars program.

SURROUNDING ENVIRONMENTS

The home base for the palmtop project is the College's Microcomputer Learning Center, which houses Macintosh and PC-compatible computers linked by a Novell local area network. The palmtops can be connected to the network for file transfer, printing, and communications.

A number of remote clinical rotation sites have been seeded with PC's equipped with connectivity and printing capabilities. This will enable students at those sites to communicate electronically with fellow students and faculty, as well as collect and store data on their educational experiences for later use.

PRACTICAL USES

Built-in applications
The College has electronically distributed a student and faculty phone book. Electronic distribution of student schedules was experimented with this semester, and will be expanded to include both basic science and clinical schedules next year.

Students have been aggressive in their use of the palmtop for day-to-day purposes. These include: composition of papers, off-line message preparation; drug dosing; keeping track of of appointments and classes, scheduling patient follow-up contacts, etc.

Data transfer
The connectivity options of the palmtop have been of significant value. The infrared link is notable for its simplicity and convenience. Data transfer capabilities used on a routine basis include: palmtop to palmtop, palmtop to printer, and palmtop to desktop.

Communications
Students have access to both internal and external electronic mail. Access has been measurably enhanced by the ability to use the palmtop as a terminal. A list server has been established on the campus network to facilitate information sharing.

Specialized software
In addition to the palmtop's built-in applications, we are exploring the requirements for specialized software to support the needs of the medical student and house officer. We have prototyped a number of functions in interactive (macro-based) Lotus spreadsheets.

DISCUSSION

First responses
Surprisingly few comments have been received on the palmtops *per se*. The students like the convenience of the infrared interface for printing and file transfer. There are fairly frequent favorable remarks on size and portability. On the other hand, there are complaints about lack of software and data loss, primarily a result of the system "hanging" under low-battery conditions. Only a few negative comments were received on the keyboard, and none on the display.

Interpersonal effects
Students have been remarkably insightful on the non-technology aspects of the project. One felt that he faced more negativism on the wards as a result of using the palmtop: there was a perception that he was not busy if he was using the computer.

FUTURE PLANS

We would like to convert to the newly-announced model 100LX. New connectivity products will clearly increase the ease with which data transfer and output operations can be carried out. A major technical and organizational challenge is the development of acceptable ways to interface the palmtops with hospital computers. We intend to develop or acquire applications meeting needs identified as part of the ongoing monitoring and evaluation process.

Our current plans call for expansion of the palmtop study to cover third- and fourth-year students as resources permit. In addition, we intend to provide support for faculty, residents, and fellows who acquire palmtops on their own.